

REMARKS:

In the response to arguments portion on page 2 of the office action, the Examiner acknowledges an argument made by the applicant in response to the previous office action in which the applicant states that the telescoping action of lens 34 of the Sala reference leads to an adjustment in the longitudinal direction, whereas the adjustment in accordance with the invention of the optics element relative to the image sensor is in the transverse direction, since the bearing surface is substantially parallel to the plane of the image sensor. However, the Examiner states that the corresponding limitation in the claim simply recites means for facilitating displacement of said contact surface of said optics carrier on said bearing surface of retaining frame until the target position of said optics element relative to said image sensor has been reached. The Examiner views this recitation as reading on either a transverse or longitudinal displacement of the optics element relative to the image sensor.

Accordingly, the Examiner has finally rejected claims 16 through 30 under 35 USC 103(a) as being unpatentable over Sala '238 in view of DeMonte '737.

In response thereto, the applicant has further restricted independent claim 16 to specify that the optics carrier has a receptacle within which the optics element is mounted. Furthermore, the optics carrier is now recited as having a carrier plate defining a contact surface at a lower side thereof. The retaining frame is now recited as having a frame plate which is disposed between the image sensor and the optics carrier. The claimed frame plate has a central opening disposed and dimensioned to pass incident light from the optics element through the central opening and to the image sensor. The frame plate has an upper side thereof defining a bearing surface which contacts and supports the contact surface of the

carrier plate. The means for facilitating transverse displacement of the contact surface of the optics carrier on the bearing surface permit transverse displacement of the optics carrier while maintaining mutual contact between the bearing surface and the contact surface. The permanent fixing of the optics carrier occurs at the target position. Support in the specification for the new limitations is most readily apparent through inspection of the figures. Method claim 28 has been amended to be dependent upon amended claim 16. The applicant submits that amended claim 16 is distinguished from the prior art of record for the following reasons.

The Examiner has identified the claimed image sensor with reference symbol 35 of Sala, which also comprises reference symbol 33, which, in turn, is described by Sala as a circuit board. The Examiner has identified the optics element with reference symbol 34 of Sala, the optics carrier with reference symbol 40 and the retaining frame with reference symbol 32. Posts 38a through d are interpreted by the Examiner to be part of retaining frame 32. The optics carrier 40 of Sala does not have a receptacle within which the optics element 34 is mounted. Although the retaining frame 32 of Sala has a frame plate (at reference symbol 32), that plate 32 is not disposed between the image sensor 33 and the optics carrier 40, rather is disposed below the image sensor 33. Nor does the frame plate 32 of Sala have a central opening which is disposed and dimensioned to pass incident light from the optics element 34 into the image sensor 33, since the frame plate of Sala is actually disposed below the optics element 34 and does not appear to have any central opening at all. The upper side of Sala's frame plate 32 is not in contact with the bearing surface of 40 of the optics carrier, rather is separated from optics carrier 40 by posts 38a-d. Therefore, a plurality of elements now claimed are missing from the Sala reference.

In combining the Sala reference with the DeMonte disclosure, the Examiner states, on page 4 of the office action end of the second paragraph, that one of ordinary skill in the art would have been motivated to include the positioning structure of DeMonte in the system of Sala to maintain focus, since one of ordinary skill would recognize that that would will allow for high accuracy positioning to be achieved and maintained in accordance with the teaching of DeMonte in column 4, lines 9 through 10 thereof. The applicant respectfully disagrees for the following reasons.

The DeMonte's disclosure concerns a fixed focus digital camera. (See title and DeMonte column 1, lines 30 and 31). A positioning mechanism allows for readjustment of the lens relative to the image sensor after assembly of the camera system and during use thereof to provide for continuous precision adjustment of the optics. Generally speaking, the positioning system of DeMonte is capable of adjusting the relative geometry between the lens and the image sensor throughout six possible degrees of freedom (see for example figure 1 of DeMonte as well as column 2, lines 35 and 36 and column 4, lines 11 through 21). The system is capable of correcting for structural deformations of elements comprising the digital camera which would otherwise lead to excessive inaccuracies in the relative position between the image sensor 152 and the lens 154 of DeMonte (see column 4, lines 18 through 21 of DeMonte).

The Sala system is completely silent concerning any need for adjustment of the optics carrier 40 relative to the image sensor 35 (33), or of the optics element 34 relative to the image sensor 35 (33). In fact, the optics carrier 40 of Sala is fixed for transverse alignment by the application of screws 39a-d into posts 38a-d (see Fig. 2 of Sala). The height of the posts 38a-d defines the longitudinal displacement between the optics carrier 40 and the image sensor 35 (33). Figure 2 of Sala clearly shows conical recesses in holes in the upper portion of optics carrier 40 which

cause a centering and precision alignment in the transverse direction of optics carrier 40 relative to the image sensor 35. The only adjustments suggested by Sala are adjustments concerning the focal length of optics element 34 through telescoping of the housing of lens 34 (see Sala column 5, lines 8 through 13). Sala is completely silent concerning any mechanism for transverse alignment of either optics element 34 or optics carrier 40 relative to the image sensor 35. This silence clearly suggests that sufficient accuracy is given with respect to transverse alignment of the Sala system, simply through the mechanical tolerances defined by Sala's retaining frame 32 with posts 38a-d and the positioning of the holes in optics carrier 40 accepting screws 39a-d. No other reasonable interpretation can be extracted from the Sala reference.

One of average skill in the art, aware of the Sala and DeMonte disclosures would not be motivated to incorporate the system of DeMonte into the Sala apparatus, since the system of DeMonte is designed to correct for tolerances which occur during the course of operation subsequent to mounting. However, Sala clearly teaches away from such an adjustment option, since the screws 39a-d of Sala prevent any relative motion between the optics carrier 40 and the image sensor 35 following assembly. Moreover, it would appear that such adjustment is not necessary, since Sala is completely silent concerning the need therefor. Incorporation of the DeMonte adjustment device in the Sala mechanism would complicate the mechanics of Sala without leading to improved function. Insufficient motivation for the combination is therefore given by the overall disclosure of DeMonte and Sala references.

The invention as claimed recites features missing from the prior art of record, either alone or in combination. Those features provide for a simple transverse alignment of the optics element relative to the image sensor which is then secured prior to setting the system into operation.

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The combination of Sala and DeMonte provides for no motivation for such a combination, in particular since there is no indication of using the cooperation between the bearing surface and the contact surface to define a longitudinal separation between the optics element and the image sensor which permits for transverse alignment only while preventing longitudinal displacement between these elements. The applicant therefore submits that the invention is sufficiently distinguished from the prior art of record to satisfy the conditions for patenting in the United States. The dependent claims of record inherit the limitations of independent claim 16 and are therefore similarly distinguished from the prior art of record for the reasons given. The applicant consequently requests reconsideration, entry of amendment and passage to issuance.

No new matter has been added in this amendment.

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Respectfully submitted

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